Basic Methodology for Calculating the Emissions Inventory (EI)

- The emissions inventory is calculated by the following equation:
- ***Emissions Inventory = Emission Rate * Population * Activity* Horsepower * Load Factor***
  - Emissions Inventory is expressed in tons/day or tons / year
  - Emission Rate is expressed in grams of pollutant/unit activity
  - Activity is in horsepower-hours/day or gallons of fuel/day

Current Status of Cargo-Handling Equipment (CHE) Emissions Inventory

- Included in ARB's current off-road diesel engine emissions inventory
- Population and Activity data not currently up-to-date or specific to Port/Rail Yards
- Refinement to the current EI is needed based on latest work done by various Ports and survey conducted by the ARB's staff

Proposed EI Methodology for CHE- Emission Factors

- Same as used for similar off-road diesel equipment
- As a function of horsepower
- Represented as the sum of Zero-hour emission factor and increase in emissions as the equipment is used
- Reflect all adopted off-road diesel engine regulations (Tier 1, 2, 3 and 4)
- Source: Mailout #MSC 99-32
  http://www.arb.ca.gov/msei/off-road/pubs.htm

Proposed EI Methodology for CHE- Population by Equipment

- Baseline population and age distribution based on the Port of LA,LB and ARB surveys
- Total statewide population based on survey data and extrapolation using appropriate surrogates such as equipment per port-type or railyard
- Baseline population will be forecasted or backcasted based on survival and growth rates

Proposed EI Methodology for CHE-Activity by Equipment

- Survey data will be used to estimate annual usage in hours/year
- Survey data will also be used to assess if activity is function of:
  - Age
  - Size of engine
  - Port and/or Railyard operation

Proposed EI Methodology for CHE-Average Hp by Equipment

- Survey data will be used to determine if the average horsepower is a function of age

Proposed EI Methodology for CHE-Load Factor by Equipment

- The load factor is the ratio of the average work load performed by an engine during its normal duty cycle in comparison to its maximum-rated horsepower
- The current off-road estimates will be used and there will be no updates to the load factor at this time